

WHAT IS CLAIMED IS:

1. A delay circuit, for a semiconductor device, having a plurality of cascade-connected stages that successively delay an input signal, the delay circuit comprising:

a plurality of cascaded-connected delay devices representing instances of a first type of delay unit corresponding to the plurality of stages, respectively;

a plurality of resistance units coupled between a node having a source voltage of varying magnitude V_{var} and odd-numbered ones of the plurality of delay devices, respectively; and

a plurality of capacitance units coupled between a node having another voltage V_{uni} of substantially uniform magnitude relative to V_{var} and nodes representing the outputs of the odd-numbered delay devices;

corresponding ones of the plurality of capacitor units and the plurality of resistance units representing instances, respectively, of a second type of delay unit.

2. The delay circuit as claimed in 1, wherein each of the plurality of capacitance units is an MOS-type capacitor.

3. The delay circuit as claimed in 2, wherein each of the plurality of delay devices is an MOS-type inverter.

4. The delay circuit as claimed in 3, wherein V_{var} is externally-supplied.

5. The delay circuit as claimed in 1, wherein $V_{uni} < V_{var}$.

6. The delay circuit as claimed in 1, wherein:

couplings represented by the plurality of resistance units are indirect types of couplings, respectively; and

even-numbered ones of the plurality of delay devices have direct type couplings, respectively, relative to the indirect couplings.

7. A delay circuit, for a semiconductor device, having a plurality of cascade-connected stages that successively delay an input signal, the delay circuit comprising:

a plurality of cascaded-connected delay devices representing instances of a first type of delay unit corresponding to the plurality of stages, respectively;

a plurality of resistance units coupled between a node having a source voltage of varying magnitude V_{var} and odd-numbered ones of the plurality of delay devices, respectively; and

a plurality of capacitance units coupled between a node having a first control voltage V_1 of substantially uniform magnitude relative to V_{var} and nodes representing the outputs of the odd-numbered delay devices; and

a plurality of switch units controlled by a second control voltage V_2 of substantially uniform magnitude relative to V_{var} and coupled in parallel with the plurality of resistance units between the node having V_{var} and the odd-numbered delay devices, respectively;

corresponding ones of the plurality of switch units, the plurality of capacitor units and the plurality of resistance units representing instances, respectively, of a second type of delay unit

8. The delay circuit as claimed in 8, wherein each of the plurality of

capacitance units is an MOS-type capacitor.

9. The delay circuit as claimed in 8, wherein each of the plurality of delay devices is an MOS-type inverter.

10. The delay circuit as claimed in 8, wherein Vvar is externally-supplied.

11. The delay circuit as claimed in 8, wherein $V_{uni} < V_{var}$.

12. The delay circuit as claimed in 8, wherein:
couplings represented by corresponding ones of the plurality of switching units and the plurality of resistance units are indirect types of couplings, respectively; and
even-numbered ones of the plurality of delay devices have direct type couplings to Vvar, respectively, relative to the indirect couplings.

13. The delay circuit as claimed in claim 8, wherein $V_2 = V_1$.

14. The delay circuit as claimed in 8, wherein each of the plurality of switch units is an MOS-type transistor.

15. The delay circuit as claimed in claim 8, wherein the plurality of stages has 4 stages.

16. The delay circuit as claimed in claim 1, wherein the plurality of stages has 4 stages.

17. The delay circuit as claimed in claim 1, further comprising switched resistance devices coupled in parallel with the plurality of resistance units between the node having V_{var} and the odd-numbered delay devices, respectively, operation of which selectively changes impedances between the node having a source voltage of varying magnitude V_{var} and the odd-numbered delay devices, respectively.

18. A delay circuit, for a semiconductor device, having a plurality of cascade-connected stages that successively delay an input signal, the delay circuit comprising:

a plurality of cascaded-connected delay means, corresponding to the plurality of stages, respectively, for respectively delaying signals passed therethrough;

a plurality of resistance means for providing impedances to currents flowing between a node having a source voltage of varying magnitude V_{var} and odd-numbered ones of the plurality of delay means, respectively; and

a plurality of capacitance means for providing capacitances between a node having another voltage V_{uni} of substantially uniform magnitude relative to V_{var} and nodes representing outputs of the odd-numbered delay means, respectively;

corresponding ones of the plurality of capacitance means and the plurality of resistance means being operable for providing delays of an RC-type, respectively.

19. The delay circuit as claimed in claim 18, further comprising:

a plurality of switched second resistance means coupled in parallel with

the plurality of first resistance means between the node having V_{var} and the odd-numbered delay devices, respectively, and for selectively changing impedances between the node having V_{var} and the delay means, respectively.

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